Title (en)
FILTERING TECHNIQUES TO REMOVE NOISE FROM A PERIODIC SIGNAL AND IRMS CALCULATIONS

Title (de)
FILTERVERFAHREN ZUR RAUSCHUNTERDRÜCKUNG BEI EINEM PERIODISCHEN SIGNAL UND IRMS-KALKULATIONEN

Title (fr)
TECHNIQUES DE FILTRAGE POUR SUPPRIMER LE BRUIT D'UN SIGNAL PERIODIQUE ET CALCULS IRMS

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Application
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Abstract (en)
[origin: WO2007146258A2] A signal filtering technique is designed to remove the effects of a periodic, low-frequency noise signal from a signal of interest. A signal waveform is sampled at different points of a number of consecutive periodic noise signal cycles and the collected samples are averaged to produce a corrected signal. The number of consecutive cycles in which samples are taken and averaged is inversely related to the signal amplitude such that as the signal level decreases, the number of cycles examined increases. The technique is particularly applicable to periodic signals associated with the output of Hall effect sensors in an electrical metrology environment. Improved RMS calculations are obtained for filtering low-frequency random noise from Hall sensors by averaging samples at different points of a signal cycle to create a composite desired signal cycle to facilitate other signal calculations. In a given electricity utility meter incorporating solid state circuitry, such metrology RMS calculations may be implemented in a metrology section of solid state devices provided on printed circuit boards, such as utilizing programmable integrated circuit components. By varying the number of cycles summed, the algorithm will adapt to amplitude changes more quickly. By using time averaged samples to filter random noise from the periodic signal of interest, the overall requirements for complex filtering is reduced. Instead, the technique relies on buffering and averaging synchronized samples for a given number of line cycles, so that by increasing the buffer size, larger numbers of line cycles can be accumulated and the filter cut-off frequency reduced.

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